Chapter-III
Research Methodology

3.1 Introduction

The quest for knowledge is a never ending process and in its simplest form this process has been called as ‘research’. In the current times research has become an organized and specialized field. Newer methods to conduct research have come up\(^1\). This chapter is based on research, the methodology & design used by the researcher for find out final outcome of the research. It discusses about conceptual model and research model also. It is prepared by the researcher himself. This chapter is gone through with definition and meaning of research methodology, objectives of research study and hypotheses etc. It also gives brief idea of data collection & classification section. This chapter discusses about types of data, sampling, number of respondents, area of study and tools to be used for data collection briefly. Another important part of this chapter is research design and conceptual design made by researcher himself with the help of his respected supervisor. The current chapter provides an insight into the basic research concepts.

3.1.1 Definition and Meaning Of Research

Research can be defined as an organized and systematic study of materials and sources in order to discover new things and establish new facts and reach new conclusions. Research in common parlance refers to the search for knowledge. Essentially speaking research involves a well developed plan, a systematic approach to developing new theories or finding solutions to various problems.

According to Kothari C.R.,“A careful critical inquiry or examination in seeking facts or principles; diligent investigation in order to as contain something.”\(^2\)

Research is essentially a systematic enquiry seeking facts through objectives verifiable methods in order to discover the relationship among them and to deduce from them broad principles or laws. It is really a method of critical thinking. It comprises defining problems, formulating by hypothesis or suggested solutions, collecting organizing and evaluating data

\(^1\) Travers, R. M. (1948). *An Introduction to Educational research*. New York: The McMillan Company
conclusion to determine whether they fit the formulated hypothesis. Thus the term ‘research’ refers to a critical, careful and exhaustive investigation or inquiry or experimentation or examination having as its aim the revision of accepted conclusion, in the light of newly discovered facts.

According to John W. Best, “Research may be defined as the systematic and objective analysis and recording of controlled observations that may lead to the developments of generalizations, principles or theories, resulting in prediction and possibly ultimate control of events.”

Zina O’ Leary has defined research as a “creative and strategic thinking process that involves constantly assessing, reassessing and making decisions about the best possible means for obtaining trustworthy information, carrying out appropriate analysis and tracing credible solutions.”

3.1.2 Definition and Meaning Of Research Methods and Research Methodology

Research methods refer to all the techniques that have been used to conduct the research. Research techniques refer to all the instruments like questionnaire and behaviours like attitude measurement that are used in research. The science of method is termed as research methodology. It refers to the process of conducting the research.

Research methodology not only describes the steps involved in conducting the research but also justifies the choice of various methods, states the limitations of research and also brings out the presuppositions and consequences and conducting the research. Research methodology answers questions like the why, what, how, when of conducting the research e.g. why has the research been undertaken, how was the problem formulated, what were the methods employed to collect the data, when was the data collected, which techniques of analysis were adopted and so on and so forth.

According to Rickman H.P., Research Methodology is defined as “The study of methods by which we gain knowledge – it deals with the cognitive processes imposed on research by the problems arising from the nature of its subject – matter.”

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According to Kenneth W. Eckhart and M. David Ermann, “The motive of a social investor is to uncover truth and fact. Method’s comprise the procedures used for generating, collecting and evaluating data. Method is ways of obtaining information useful for assessing explanations.”

According to Abraham Kaplan, “Research methodology is the description, explanation and justification of various methods of conclusion research.”

3.2 Objectives Of the research study

Our research is primarily concerned with the production of knowledge about sales promotional strategies of shopping malls in Madhya Pradesh. It is focus on some innovative process of discovering the unknown and rediscovering the known fact and figures also. Although every research has its own set of objectives, yet our research can be conducted with the following two broad objectives in mind:

3.2.1 Main Objectives

Main objectives of the research study is to understand the impact of sales promotional strategies used in different shopping malls in Madhya Pradesh as there is less awareness of technological development among people living in that areas have more closeness towards nature. The study is an approach to explore and describe their attention, influence and mindset regarding sales promotional strategies used in different shopping malls.

3.2.2 Subsidiary Objectives

Research can be carried out with the purpose of gaining familiarity with a particular topic or to gain insight into unexplored areas. Quite often a research can be carried out with the objective of describing a particular situation, event or an individual etc. Our subsidiary objectives of research study are given as following:

1. To design and develop a measurement for find out effectiveness of sales promotional strategies used in different shopping malls in Madhya Pradesh.

2. To identify the underlying factors of sales promotional schemes of different shopping malls.


3. To recognize the differences between different income groups, age, gender, occupation, and educational level on the sales promotional strategies of shopping malls.

4. To find out the most effective comparison between the preferences of customers in shopping malls.
5. To find out the difficulties faced by the customers in shopping malls.
6. To open the new vistas for further research etc.

3.3 Methodology

The research study was exploratory and descriptive in nature. The data was collected through survey method or questionnaires. The relationships between demographic variables were evaluated by using statistical tools.

3.3.1 Research design

After the acceptance of research proposal, the researcher faces the important task of working out the details. We have to elucidate on the method of drawing a sample, the method of collecting and arranging the data and develop an instrument for collecting data. All these tasks which are concerned with working out the condition of conducting a research are detailed in research design. Through this design, a researcher is able to test the variety of the hypothesis on the basis of resulting data. Research design is the blue print for the collection, measurement and analysis of data. Research design provides direction, ensures smooth and economical conduct of research. It is also a control tool for the researcher and the critics to evaluate the study.

3.3.2 Sampling design

It is concerned with method of defining and selecting the sampling units. The primary data had been collected with the help of questionnaires and personal interviews of customers and dealers as well as shop owners. Two sets of questionnaires had been prepared, one to know the customers satisfaction level and their problems and another questionnaire for dealers as well as shop owners. Some questions were close ended with multiple choices to save the time.

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while some were open ended questions. The sample size was 400. Likert type scale was used in both questionnaires\(^9\).

a. **Population**

The population for the study of sales promotional strategies included all the four districts as Gwalior, Bhopal, Indore and Jabalpur of Madhya Pradesh.

b. **Sampling Frame**

All individuals of cities as Gwalior, Bhopal, Indore and Jabalpur of Madhya Pradesh were sampling frame.

c. **Sampling Technique**

Non Probability, purposive and convenient sampling technique was used to identify the respondents of the study. Proportionate re-presenters from all the demographic groups were ensured to minimize sampling error.

d. **Sampling Elements**

Individual respondent from Gwalior, Bhopal, Indore and Jabalpur of Madhya Pradesh was sampling element of the study.

e. **Sample Size**

Sample size was collected from 400 respondents belong to Gwalior, Bhopal, Indore and Jabalpur of Madhya Pradesh. From a researcher point of view, primary data is the information that has been collected specifically for the purpose of investigation research at hand and it involves time consumption, expensiveness with a great efforts. The primary data was collected by the researcher himself after developing rapport with the respondents. One hundred respondents were selected from each major city as from Gwalior, Bhopal, Indore and Jabalpur mention above of Madhya Pradesh.

### 3.3.3 Secondary Data

The planning phase of the research comprises of problem formulation, developing a research design, a sampling design and a set of measurement scales. The next stage is of data collection through a field survey. A more prudent approach is to study and evaluate the

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existing data so that the researcher’s time, effort and money can be used optimally. However, use of secondary data in a research survey involves a careful analysis of various related issues like sources of data, reliability and accuracy of data, cost involved in obtaining secondary data etc.\textsuperscript{10}

The secondary data had been collected from different sources as published schemes of sales promotion strategies of selected shopping malls from Gwalior, Bhopal, Indore and Jabalpur. Researcher has been obtained secondary data also from various literatures to various sources such as Research articles and research paper in Journals, Books, Magazines, News Papers, Television in form of print and online through Internet regarding the present situation of sales promotion strategies of selected shopping malls of the Madhya Pradesh.

3.4 Hypotheses

The formulation of a hypothesis is a step towards formalizing the research process. It is an essential part of scientific method of research. The quality of hypothesis determines the value of the results obtained from research.\textsuperscript{11}

The value of hypothesis in research has been aptly stated by Claude Bernard as follows, “The experimental method will not give new and productive ideas to those who do not have them; it will only help them guiding the ideas to those who have them; and in developing those as to draw the best possible results. The idea is the seed; the method is the soil which provides it with the conditions to develop, to prosper and give better fruits following its nature. But just as the soil will never produce anything other than what has been sown, similarly only those ideas which have been put to the experimental methods will be developed by the latter. Thus the ideas stated in the form of hypothesis will determine the output of results. Hypothesis is an assumption made about a population parameter. This hypothesis is then proved or disproved by using the information from the sample to decide the likelihood of the hypothesized population parameter to be correct or not. Hypothesis testing is a screening exercise.

“Hypotheses are questions asked about the object of research and at the same time about the facts gathered by observation and proposals for answers to these questions.”\textsuperscript{12}

These are our main hypotheses given as following:

**H₀₁.** There is no significant and positive relationship between two genders on sales promotional strategies of shopping malls.

**H₀₂.** There is no significant and positive relationship between monthly incomes of individuals on sales promotional strategies of shopping malls.

**H₀₃.** There is no significant and positive relationship between individuals of different education levels on sales promotional strategies of shopping malls.

**H₀₄.** There is no significant and positive relationship between individuals of different occupations on sales promotional strategies of shopping malls.

**H₀₅.** There is no significant and positive relationship between individuals of different age groups on sales promotional strategies of shopping malls.

### 3.5 Data Analysis

The process of converting raw data into information starts with data processing and continues to data analysis. The analysis of data involves using statistical techniques to order data with the objective of obtaining answers to reach questions. Analysis can be viewed as the ordering, breaking down into constituent parts and the manipulation of data to obtain answers to the research questions underlying the survey project. Data analysis strategy is influenced by four factors as,

(i) Type of data
(ii) Research design
(iii) Researcher qualification and
(iv) Assumptions underlying a technique.

#### 3.5.1 Tools to be used for Data Collection

Self design questionnaire will be used to measures all the variables. The data will be collected on the scale of A-E Likert’s scale.

#### 3.5.2 Tools to be used for Data Analysis

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a. Demographic Factors

Demographic factors are those factors which included age, gender, qualification, occupation, place and monthly income of a particular person under the population segment.

b. Reliability

Cronbach’s Alpha; Split Half, Guttman, Parallel and Strict Parallel tests had been applied to calculate reliability of all items of sales promotional strategies of shopping malls of the questionnaires. It is considered that the reliable value more than 0.7 is good and it can be seen that in almost all the reliability values are quite higher than the standard value. Value of Split Half Test is slightly lower than other tests but can be considered as other values are showing higher reliability.

c. Factor Analysis

Factor analysis is a set of procedures used for data reduction and summarizing data. It is one of the most commonly used inter dependency techniques. It is used when the relevant set of variables show a systematic inter dependence. Its main objective is to find out the latent factors that create a commonality. Factor analysis can be of two types as:

1. R-type Factor Analysis
   R-type factor analysis is used to analyze relationships among variables.
2. Q-type Factor Analysis
   Q-type factor analysis is used to analyze relationship between respondents. It forms groups of respondents based on their similarity on a set of characteristics. Generally in this type of analysis, cluster analysis is preferred.

Stopping rules are the criteria used to determine the number of variables to be extracted with the help of using any of the five methods given below:

1. A Priori criterion
   A very simple method based on the prior knowledge that the researcher might have on how many factors to be extracted.

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2. Eigen value criterion
Eigen value is the column sum of squared loadings for a factor and represents the amount of variance accounted for by a factor. It is also known as ‘latent root’.

3. Percentage of variance criterion
This rule pre-specifies a percentage of variance that must be explained by all the factors cumulatively.

4. Scree test criterion
In this test, the Eigen values of extracted factors are plotted on a line graph against the number of factors in order of extraction. The value when plotted on a line graph will show a negatively sloped plot due to the fact that earlier factors have more unexplained variance available to them than later factor, hence steep fall for initial factors.\(^\text{15}\)

5. Significance test criterion
Another rule is to calculate the statistical significance of each Eigen value and extract only those which are statistically significant. This criterion becomes unpractical when the sample is very large.

d. KMO-Bartlett’s Test
Kaiser-Meyer-Olkin Measure of Sampling Adequacy Value .573 indicating that the sample was adequate to consider data as normally distributed. Bartlett's Test of Sphericity tested through Chi-Square Value 9726.820 significant at 0\% level of significance indicating that the data has low sphericity therefore suitable for factor analysis.

e. T-test
Hypothesis testing helps in generalizing about the population from a sample statistic value. The different types of hypothesis tests can be broadly classified as parametric and nonparametric tests. Parametric tests are based on some assumptions about the parent population from which the sample has been drawn. These assumptions may be with respect to sample size, type of distribution or on population parameters like mean, standard deviation etc. The most commonly

used parametric tests are Z-test, t-test and F-test etc. Z-test is a popular test for judging the significance of mean and proportions. It is used for t-distribution (n=15/2) and binomial or Poisson distribution also when the size of sample is very large. The t-test is a univariate test that uses t-distribution for testing sample mean and proportion when the size of sample is very small (i.e. less than 30). It is a symmetrical bell-shaped curve. The variance of t-distribution approaches the variance of standard normal distribution as the sample size increases.

f. ANOVA

Analysis of variance or ANOVA is a case of using F-test to compare variance. F-test is based on F-distribution. It is generally used to compare the variance of two sets of observation. ANOVA uses the underlying assumption that several sample means were obtained from normally distributed population having same variance or standard deviation. ANOVA involves classifying and cross-classifying data and then testing if the mean of a specified classification differ significantly. The ANOVA technique was initially used in agrarian research and is now actively used in researches based on experimental design, whether in natural science or in social science. ANOVA analysis techniques have been discussed under the following heads:

1. One Way ANOVA
   In one way ANOVA, data is classified according to one factor only.
2. Two Way ANOVA
   Two ways ANOVA studies the effect of more than one factor simultaneously. It allows the researcher to examine the interactions between the two factors.

3.5.3 Software Used For Statistical Analysis

SPSS was originally called as statistical package for the social sciences. It was released in 1958 by Norman Nic C Hadlai Hull and Dale H Bent. SPSS is popular software for statistical analysis among business researchers, health researchers, education researches etc. This software covers a broad range of statistical procedures that summarize data e.g. compute mean, standard deviation, moments etc., determine whether there are significant differences between groups e.g. t-test, z-test etc., examine relationships by calculating co-relation,

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regression, multiple co-relation or multiple regressions and also show results through graphs. SPSS runs easily on the popular operating systems like Windows, Macintosh and Linux. SPSS is mainly used in Political Science, Communication, Sociology, Social work and Psychology for data analysis about people, their attitudes and behaviours. It allows for analytical process planning, data collecting, data access, data management and preparation for reporting. Collected data has been analyzed by researcher himself with the help of different statistical calculations using SPSS software. Statistical package for social science (SPSS) version 20.0 for windows seven has been used for data analysis and hypotheses testing and analyzed with the help of various types of pie-chart, graphs and bar charts etc. by using Microsoft Excel 2010 for windows seven.

3.6 Conclusion
This chapter is concluding that the researcher has used all tools and techniques in data collection and data analysis for research. In this chapter, he is trying to define the entire process of research methodology systematically. According to the researcher, it is not easy to collect data from the consumers as well as dealers but he had already worked in this field previously so that he develops a new strategy for data collection. How to analyze the collected data is not only a big task but also a great challenge therefore now these days Statistical Package for Social Sciences is popular software in social science has been using in current research for analysis of data easily. SPSS is mainly used in Political Science, Communication, Sociology, Social work and Psychology for data analysis about people, their attitude and behaviour. It allows for analytical process planning, data collecting, data access, data management and preparation for reporting. Collected data has been analyzed by researcher himself with the help of different statistical calculations using SPSS software.